Project Leader's Report

May 2005

USDA Forest Service - Southern Research Station - 320 Green Street Athens GA 30602 - http://www.srs.fs.fed.us/disturbance

DISTURBANCE AND MANAGEMENT OF SOUTHERN ECOSYSTEMS

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Outreach Activities:

• Six organized groups with a total of 130 people visited Brender Forest during the month of April. These groups included the Abraham Balwin Agricultural College (ABAC) Silviculture Class from Tifton, 5 biology classes from Mercer University and the Older American Council from Gray. These groups visited several reserch study demonstration and the Hitchiti Natural area.

• Approximately 30 visitors came by the office at Brender Forest for information and 125 people signed the register at the Hitchiti Interpretive Trail. Some of these visitors came from as far away as Washintgton, DC.

ABAC Forestry Sciences Building

Mercer University Macon, GA.

Technology Transfer:

• Mike Hilbruner, National Program Leader for Fire Research, highlighted the Encyclopedia of Southern Fire Science in his annual briefing on fire research for House and Senate staffers and DOI and FS Washington Office staffers last month. Currently, the encyclopedia contains over 600 pages of content with recently published topics on fire control and suppression, firefighter safety, fire ecology and management of Florida dry prairies, Southern Appalachian grassy and heath balds, and coastal salt marshes. Look for new content next month on the effects of fire on air quality, smoke management, and other topics.

• Kenneth Outcalt authored two descriptions of potential natural vegetation types that were published on the web as part of the Fire Regime Condition Class (FRCC) program. The FRCC program is a national effort to describe and model fire in all important vegetation types in the US; Ken described the Sand Pine Scrub (SPSC) and Palmetto Prairie (PAPR), which are available at: www.frcc.gov/pnvgSummaries.html.

The Chinese Academy of Forestry, China.

• Gary Achtemeier met with Dr. Yi Haoruo, Deputy Director, The Research Institute of Forest Resources, The Chinese Academy of Forestry, China. The purpose of the meeting was to brief Dr. Yi on the SRS-4104 smoke management research. The discussions dealt with night smoke model PB-Piedmont and Project 4S, including Daysmoke.

• Mac Callaham gave a seminar at Coweeta Hydrologic Laboratory. He was hosted by Jennifer Knoepp. Mac also toured the facilities and several study sites that are currently underway at Coweeta and the surrounding area, and discussed plans for sampling soil invertebrates in some of these studies.

• Callaham was invited to serve on the graduate advisory committee for UGA graduate student Bruce Snyder. Bruce is a first year PhD student and will be studying the effects of an invasive earthworm species on soils in the Great Smoky Mountains National Park.

Ken Outcalt stump speech

• Ken Outcalt participated in a field tour of the Osceola National Forest for visiting biologists and ecologists from National Forests across the U.S. He gave presentations on the long-term burn study, results of 1998 Florida wildfires, and the general ecology and management of flatwoods ecosystems.

• Gary Achtemeier and Yong Liu gave presentations on SHRMC-4S/Daysmoke to the Atmospheric Sciences and Applications to

Technology Transfer Continued:

Air Quality International Conference in San Francisco. This group is interested in air quality around the Pacific Rim and fire is a major concern for them. The topic of Achtemeier's presentation was "A coupled modeling system for connecting prescribed fire activity data through CMAQ for simulating regional scale air quality." Scott Goodrick and Yong Liu are co-authors. Questions after the presentation regarded extension of Daysmoke to wildfire and application of the model to grids other than the CMAQ grid. The title of Liu's paper was "The effects of biomass burning on the South American Monsoon."

• John Stanturf gave an invited seminar at the Danish Centre for Forest, Landscape, Planning of the Royal Veterinary and Agricultural University (KVL) in Hørsholm (near Copenhagen) on "Science delivery in a multicultural context." He met with Director Niels Elers Koch to discuss his participation in the session on science delivery at the IUFRO World Congress.

• Dave Cleland participated in a national meeting in Portland at the request of the WO to review and improve national indicators of sustainability. This workshop addressed the first three indicators agreed to in the Montreal Process: ecosystem diversity, species diversity, and forest health.

• A team comprised of Pat Fowler, Rich Corner, Jennifer Hooper, and John Hutchinson from the Huron-Manistee worked for a week in Rhinelander with Dave Cleland's team to complete a crown and surface fire risk assessment of the National Forest. They also applied the national system to complete a Fire Regime Condition Class map of the Forest based on departures of modern fire regimes from historical fire regimes. These results were presented to a WO fire review of the Forest.

Meetings/Reports:

• Tom Waldrop met with Steve Jeffers, Clemson University, and Inga McLaughlin, Oregon State University, to discuss future research on pathogens that occur as a result of fuel reduction treatments in the National Fire and Fire Surrogate Study. Ms. McLaughlin will examine the delayed mortality of hardwoods that seemed to occur in relation to fire intensity. Waldrop and Jeffers will work with Dr. Dan Yaussy (NE Experiment Station) to combine data from several studies that have observed hardwood mortality over a period of several years after a seemingly low-intensity fire. Causal agents could be poor site quality, root-borne pathogens, drought, or a combination of these and other variables.

• Sandra Rideout-Hanzak served on the MA Committee for Jeff Bransford who defended his thesis last month in the Parks, Recreation and Tourism Department of Clemson University. His thesis title was: "Understanding the attitudes obf south Florida residents towards the Comprehensive Everglades Restoration Plan using market segmentation."

• John Stanturf met with Silke Alsen, Nordic/Baltic Regional Office of Environment, Science, Technology and Health, Department of State, at the US Embassy in Copenhagen. They discussed potential support for work in the Baltic region, including the Scandinavian Disturbance Network. Lori Dando, Director of the REO, was unable to meet because of President Bush's visit to Latvia.

• John Stanturf is representing the agency on a planning committee for a session for an upcoming White House Conference on Cooperative Conservation, to be held in St. Louis, Missouri from the 29th to the 31st of August. He attends weekly meetings in Washington.

Partnerships:

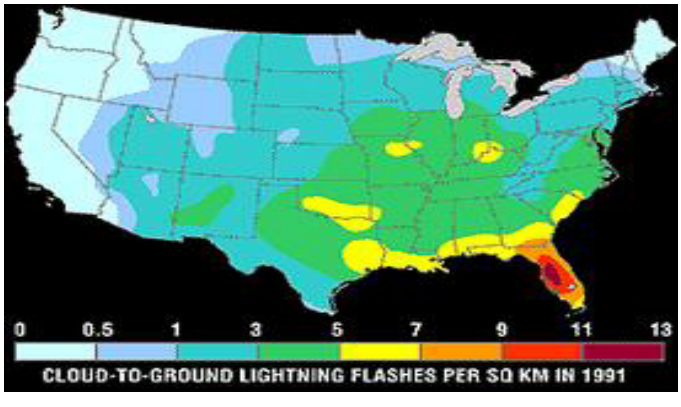
• Kenneth Outcalt has agreed to serve as the advising fire ecologist and assist in completion of a proposal being revised for funding from Joint Fire Science Program submitted by Cassandra Johnson on social attitudes about fire in the South.

• Gary Achtemeier and Francis Fujioka, Pacific Southwest Research Station, discussed opportunities for collaborative research, specifically applying Daysmoke to a wildfire case in southern California.

Science Highlight:

Thunderstorms and the associated lightning are common in the southern US, especially in Florida the "lightning capital of North America." A small percentage of these lightning strokes are a special kind with longer duration that can heat material on the ground enough to start a fire. The longleaf pine ecosystems that once were common across the South from Virginia to Texas are adapted to these lightning ignited fires. Much of the historic range of longleaf pine burned on a 1-5 year cycle. Lightning is also important on a local scale because it kills trees in longleaf stands. For 10 years, Kenneth W. Outcalt has been studying the impacts of such lightning on longleaf pine stands on the Ocala National Forest.

The average annual lightning density reported for this region of Florida is 10-12 strikes km^{-2}. In study stands, the density was nearly twice as frequent, at 23 strikes km^{-2} yr^{-1}. Given this extremely high occurrence of lightning on the Ocala National Forest, it is not surprising that lightning was the major cause of tree death in longleaf pine stands studied. The 70 % of all trees killed during the 10-year period equated to 30 trees km^{-2} each year. Prescribed burning killed the fewest trees at just 2 trees km^{-2} yr^{-1}. Actually, lightning very rarely directly kills trees. It only happened twice on the 80 hectares of this study. More commonly, the heat from the lightning causes the water and air in the conducting tissue of the stem to expand rapidly. This rapid expansion causes cell walls to break, and often blows bark and wood from the tree trunk. This tree damage sends out turpenes that alert resident bark beetles of the injury. The mass attack of beetles, combined with mechanical damage from the lightning, usually results in death. Occasionally, however a tree will recover, which happened once in this study.



Average number of lightning strikes per square km in 1991. Redder colors are higher number; Center Florida had the highest level.

Science Highlight:

Because weather is variable, so is lightning. The lowest activity occurred in 1996 when yearly mortality rate was just 12 trees km^{-2}. The highest rate was nearly four times greater at 45 trees km^{-2} in 1999. Because summer months are most favorable for thunderstorm development and therefore lightning, June-September had the highest average lightning-caused tree mortality. This also varied a lot; in some years most lightning occurring in June and in other years August was the month with most lightning.

Our work confirms the standard safety advice of avoiding tall objects during thunderstorms. The tallest trees in the stands had a much higher probability of being hit by lightning than did the shorter trees. Sometimes, however lightning would strike a short tree surrounded by taller ones. The effect of taller objects only operated over a short distance. Trees in low regions within the stands received just as many strikes as those growing on the hills, or topography did not matter on a stand scale. The phrase, often used in a different context, that lightning doesn't strike twice in the same place, is clearly wrong as applied to real lightning. Two trees killed by lightning early in the study were hit a second time after they became dead snags.

Trees killed by lightning over the 10-year period were clumped within stands. Lightning often spreads, or splinters, into multiple leaders near the ground. Over 20% of all strikes in study stands were this type, which resulted in the simultaneous hit of 2 to 4 trees in a group. In addition, 50% of all trees hit by lightning were on the edge of an existing stand gap. Thus, 70% of all strikes created or enlarged gaps within the stand. All of these attributes combine to significantly shorten the time required to create openings large enough for longleaf pine regeneration, i.e. at least 0.1 ha (0.25 ac), from decades to 5-10 years.

Management Implications

The stands included in this study have been under a long-term prescribed burning program for 30 years, which has included both dormant season and growing season burns during the last 20 years on a 3-year fire return interval. The mortality data from this study shows that prescribed burning kills very few trees in healthy longleaf pine stands.

Lightning disturbance can give us some clues in development of silvicultural management systems that mimic natural disturbance. Uneven-aged management of sandhills longleaf could use a combination of single tree and group selection harvest with 20% taken to create new gaps, 50% harvested to expand existing gaps and 30% as single trees within the forest matrix as a starting guide. This should only be applied to stands with a healthy understory dominated by grasses and forbs. Do not create openings in stands with understories dominated by woody species, because this will release this woody competition while removing the overstory needle-fall needed to carry the fire necessary to control this competition.

Marcus Williams, Masters student Florida A&M, assisted Ken Outcalt with this study

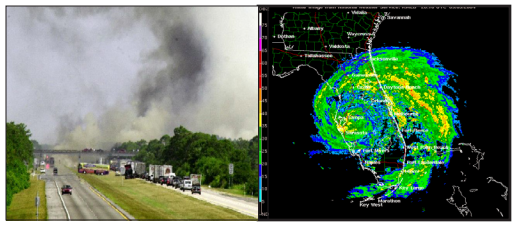
Mike Allen Forestry Tech measuring lightning damaged tree.

A healthy understory dominated by grasses and forbs.

From the Cover (Masthead) - Some of the disturbances that affect our environment.

http://www.lightning-safety.com/index.html

http://www.firewise.org/tips.htm



http://www.tallytown.com/redcross/library/WhatToDoIfYouEncounterSmokeOnFloridaHighways.pdf

http://www.redcross.org/services/disaster/0,1082,0_587_,00.html

http://www.redcross-pdx.org/wintersafety.pdf

http://www.lightningsafety.com/nlsi_pls/lst.html

http://www.redcross.org/services/di-

"The difference between the right word and almost the right word is the difference between lightning and a lightning bug."

Mark Twain
19th century US author and humorist

Funding:

• Ralph DiCosty, John Stanturf, Tom Waldrop and Mac Callaham received a 3-year, $300,000 grant from the Joint Fire Science Program for a study entitled "Does prescribed burning in southern forests release significant amounts of mercury to the atmosphere?" Cooperators include S. Knight Cox (Clemson Experimental Forest, SC) and Kathleen Atkinson (Chattahoochee-Oconee National Forests, GA). Mercury emission and cycling in prescription-burned forests will be measured by determining mercury in the forest floor/surface soil before and after prescribed fire and by comparing soil mercury levels in paired sites with different fire histories.

• A proposal entitled "Interaction of ecosystems, fires, air quality and climate change in the Southeast," submitted by Georgia Institute of Technology, was funded by EPA. This 3-year research project will integrate process-based ecosystem, fire emissions, air quality, and regional climate models to systematically understand the complex interaction of these components in the southeast in a climate change setting. Yong Liu is a Co-PI of this proposal and will work with the proposal by helping supervise graduate students.

• Dana Camp received a National Science Foundation Research Experience for Undergraduates Award. Through the award she will be provided the opportunity to conduct a research project of her own devising, under the guidance of Paul Hendrix (UGA), and Mac Callaham.

• Alex Clark has been contracted by the Pacific Northwest Station to a conduct x-ray densitometry analysis on Sitka spruce and western hemlock sampled in a pre- commercial thinning study in Alaska; $41,000.

• Alex Clark has received $50,000 in continuing funding from the Southern Research Station Agenda 2020 program for the work with Tim Martin and Gary Peter at the University of Florida on "Secondary Xylem Form and Function: Linkages among Wood Quality, Growth and Tree Water Relations."

• Yong Liu received $10,000 from the Washington Office to support the Eastfire Conference with George Mason University.

• John Stanturf received $8,000 from International Programs to support student attendance at the United Nations Forum on Forests through the Society of American Foresters.

• Dave Cleland received $40,000 from the Washington Office for continued support of his work on ecosystem sustainability.

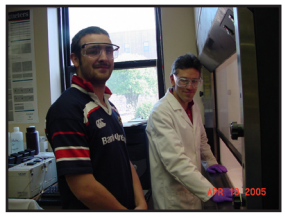
Visitors

Chinese forest administrators visiting with unit scientists.

• Three Chinese forest administrators who are in an exchange program with International Paper, visited the lab and were hosted by John Stanturf. The visitors were Dr. Chunyu Su, Deputy Director General, Department of Forest Resources, State Forestry Administration; Ms. Nuyun Li, Deputy Director Reforestation Department; and Dr. Ronghua Ye, Chief Engineer, National Natural Forest Protection Center and Director, European Union-China Natural Forest Management Project. Gary Boyd, Manager Conservation Partnerships with International Paper, accompanied the visitors. In addition to briefings from our unit, Jim Hanula provided an overview of the insect and disease unit in Athens. The visitors met with several scientists and spent a day with John Petrick, Planner at the Supervisors Office, Chattahoochee-Oconee National Forest learning about national forest planning. Their program with International Paper is part of an exchange program between IP and the State Forestry Administration; they were selected from among 200 candidates for the training.

Visitors

• Prof. Yi from the Chinese Academy of Forestry in Beijing, hosts Yongqiang Liu and John Stanturf.



Ralph Dicosty showing Ben Burbridge around the chemistry lab.

• Ben Burbridge, a student from Scotland, participated in fieldwork for a week. Ben is contemplating changing his major from sports medicine to a natural resources field.

Personnel News:

• Dexter Bland, Forester in Athens, will begin a new position as Timber Sale Administrator for the US Army Corps of Engineers at the de-commissioned Ft. McClellan near Anniston, AL. Congratulations, Dexter on your long-awaited return to the management side.

• Deb Kennard will begin a new position this summer as Assistant Professor in the Department of Physical and Environmental Sciences at Mesa State College in Grand Junction, CO. Congratulations, Deb!

• Eric Neiswanger, Forestry Technician in the Coastal Plains Fire Team at Myakka River State Park has secured a new permanent position. Beginning May 30, he will be working for the National Park Service at Big Cypress Preserve in South Florida as a member of the fire staff. In addition to being a great worker, Eric is a very nice person and thus has been a great employee. We wish him the best in his new job.

Dana Camp and Ben Burbridge at Earth Day on the UGA campus.

• Dana Camp, a student worker in Mac Callaham's lab, again organized the festivities for Earth Day on the UGA campus. The celebration was a success as Dana and her colleagues in the Student for Environmental Awareness got the good word out to a large number of UGA students with displays, information distributions, and a free concert that evening.

Personnel News:

• Tyler Clemons, student worker with Alex Clark has secured a permanent position with the Forest Service in Alaska. Congratulations and stay warm, Tyler.

• Welcome to new student workers Jeff Vissage (major Wildlife and Fisheries Biology) and James Douglas (major Forest Management) at Clemson with Tom Waldrop.

• Welcome to Susan Bennett, ecology student at UGA who will work with Mac Callaham.

• Welcome to MS (Statistics) student Lewis Jordan, who will work with John Stanturf.

News from Around the Region:

• Tat Smith will take up the position of Dean of the Faculty of Forestry at the University of Toronto effective 1 July 2005, and will therefore step down from his appointment as Professor and Head of the Department of Forest Science at Texas A&M University effective 30 June 2005.

• Bob Jacobs has announced his retirement, leaving the position of Southern Regional Forester, effective June 3. Gary Pierson will serve as Acting RF. Bob is an avid archery hunter, fisherman, woodworker and brewmeister, and no doubt will keep busy.

• Marc Rounsaville has been named the National Deputy Director, Fire and Aviation Management. Prior to this selection, Marc was the Director of the Fire and Aviation Program of the Forest Service Southern Region, headquartered in Atlanta, Georgia Originally from Leaksville, Mississippi, Marc holds a B.S. Degree in Forestry from Mississippi State University.

• Other shifts among Forest Service employees include the retirement of Jack Blackwell, Pacific Southwest Regional Forester (R-5) and the naming of Bernie Weingardt as the new RF; Michael Sanders, Deputy Forest Supervisor on the Mark Twain to Forest Supervisor, Ozark-St. Francis NF; and Bruce Bayle from Region 8 to International Programs, South America.

News from Around the Region:

• The 14th Biennial Southern Silvicultural Research Conference will be held in Savannah, Georgia from Feb 26 to Mar 1, 2007. John Stanturf is Program Chair and David Moorhead, Professor of Silviculture at the University of Georgia in Tifton, is Local Arrangements Chair. The conference will be held at the Savannah Marriott Conference Center, on the river in downtown Savannah. Watch the website for further details. http://www.srs.fs.usda.gov/bssrc

• Each year, the 13 southern states have about 45,000 wildfires that result in substantial loss of resources and property. That's significantly more than any other region of the country, according to the newly released publication *Fire in the South: A Report by the Southern Group of State Foresters*. "Although fires in other areas of the country get a lot of attention, the fact is that the South leads the nation in the number of wildland fires each year," said Southern Group of State Foresters (SGSF) Chair Leah MacSwords. "With an increasing population and the construction of more and more homes in forested areas, the potential risk to life and property increases proportionally each year." Fire in the South introduces the Southern Wildfire Risk Assessment, and reviews the status and characteristics of the wildland fire problem in the states of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas and Virginia. The risk assessment also examines the associated impact to the southern forest economy and includes recommendations and potential solutions to the increasing challenges of wildland fire suppression. Detailed findings of the Risk Assessment will be released this summer. Some of the key findings in *Fire in the South*:

  • State agencies are responsible for wildland fire suppression on 94% of the South's 214 million acres of land. The majority of the South's woodlands are privately owned.

• The 13 southern states produce 65% (almost two-thirds) of the nation's wood fiber. Forest industries in the South employ more than 2.2 million workers and contribute $251 billion to the economy.

• The southern region has one of the fastest growing populations in the nation. In 2001, the South was home to seven of the nation's 10 fastest-growing counties.

• Changing demographics bring new concerns to firefighting efforts in the South. Wildfires are no longer just a rural area problem. Because of the increasing wildland-urban interface, structural losses from wildfire will be a greater risk.

• As population density increases, traditional firefighting tactics (such as prescribed burns and plowed fire breaks) are increasingly difficult to employ.

The Fire in the South report and the Southern Wildfire Risk Assessment are a cooperative project initiated by the Southern Group of State Foresters, funded by a National Fire Plan grant and by federal land management agencies, including the USDA Forest Service, USDI Fish and Wildlife Service and the National Park Service. For more information and a copy of the full report, contact David A. Frederick, Southern Fire Representative, P.O. Box 680235, Prattville, Alabama 36068-0235, at 334-365-8690 or e-mail firerepsgsf@charter.net

• Five forest products companies were listed in the top 500 companies in Forbes magazine's Global 2000: Weyerhaeuser (US), Stora Enso (Finland), UPM-Kymmene (Finland), Georgia-Pacific (US), SCA-Svenska Cellulosa (Sweden), and International Paper (US).

Publications

FY 2005 Publications: (*denotes new publication this month)

Refereed Journals and Book Chapters

Achtemeier, Gary L. 2005. Planned Burn-Piedmont. A local operational numerical meteorological model for tracking smoke on the ground at night: model development and sensitivity tests. *International Journal of Wildland Fire* 14: 85-98.

Baumhauer, Madsen, P., **Stanturf, J.A**. 2005. Regeneration by direct seeding—a way to reduce costs of conversion. Chapter 22 in Stanturf, J.A. and Madsen, P, eds. *Restoration of Temperate and Boreal Forests*. CRC Press, Boca Raton. P. 349-354.

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Haight, Robert G., **Cleland, David T**., Hammer, Roger B., Radeloff, Volker C., Rupp, T. Scott. 2004. Assessing fire risk in the wildland-urban interface. *Journal of Forestry* 102(7): 41-48.

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Stanturf, J.A. 2005. What is forest restoration? Chapter 1 in Stanturf, J.A. and Madsen, P., eds. *Restoration of Temperate and Boreal Forests*. CRC Press, Boca Raton. P. 3-11.

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Publications

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Abstracts and Posters

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Stanturf, Bland, Samuelson, Leininger, Burke. 2004. Three-year growth response of four clones of eastern cottonwood (*Populus deltoides* Bartr. ex Marsh.) to fertigation. 22nd Session International Poplar Commission, The Contribution of poplars and willows to sustainable forestry and rural development, Santiago, Chile 29 Nov-2 Dec 2004; p. 118 [Abstract]

Stanturf, Bland, Samuelson, Leininger, Burke. 2004. Three-year growth response of four clones of eastern cottonwood (*Populus deltoides* Bartr. ex Marsh.) to fertigation. Biomass and bioenergy production for economic and environmental benefits, Short Rotation Woody Crops Operations Working Group Biennial Meeting, Charleston, SC November 2004; p. 59 [Abstract]

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Upcoming Events:

2005

*May 10-11	AF&PA-Agenda 2020 Wood and Wood Composites Research Committee Meeting, Madison, WI. Alex Clark to Attend.
May 11-13	Conference on Remote Sensing and Fire, to be held at George Mason University in Fairfax, VA.
May 11-13	International Conference on Transfer of Forest Science Knowl edge and Technology Transfer, Troutdale, OR; http://www.fs.fed.us/pnw/calendar/tech-transfer/index.shtml
May 22-25	Soil Ecology Society Meetings at the Argonne National Laboratory in Illinois. Callaham to attend and present.
*May 23-24	Fire in Southern Appalachians Workshop, Coweeta Hydrologic Lab; Tom Waldrop invited speaker
*May 26	Wood Quality Consortium Annual Meeting, Athens, GA. Alex Clark to attend and present.
Jun 6-10	National Silviculture Workshop, "Restoring fire-adapted forested ecosystems" Granlibakken Conference Center in Tahoe City, California
Jun 12-16	5th North American Forest Ecology Workshop, Aylmer, Quebec, Canada; http://www.unites.uqam.ca/gref/nafew2005/
*Jun 19-22	59th Annual International Convention, Forest Products Society, Quebec City, Canada; Alex Clark to attend and present paper. http://www.forestprod.org/confam05.html.
Jun 20-24	5th International Conference on Forest Vegetation Management, IUFRO Research Group 1.13.00 Forest Vegetation Management. Corvallis, Oregon, USA. http://outreach.cof.orst.edu/icfvm/index.htm
*Jun 19-22	59th Annual International Convention, Forest Products Society, Quebec City, Canada; Alex Clark to attend and present paper http://www.forestprod.org/confam05.html
Jun 20-23	Southern Forest Tree Improvement Conference (SFTIC), Sheraton Capital Center, Raleigh, North Carolina; http://www.ncsu.edu/feop/sftic /
*Jun 27-29	LOICZ II Inaugural Open science Meeting, Egmond aan Zee, The Netherlands (Land Ocean Interactions in the Coastal Zone), Stanturf invidted to attend and present paper; http://www.loicz.org/loica_nl/6cfc735ad960dcbcfdd34acaf1981256.php.
Jul 17 – 20	American Society Agricultural Engineers (ASAE) annual meeting, Tampa, Florida; session on Forest Engineering Contributions to Biomass Collection and Transport organized by Bryce Stokes, Email: bstokes@fs.fed.us

Upcoming Events:

Jul 18-22 AFFORNORD, Conference on Effects of Afforestation on Ecosystems, Landscape & Rural Development, Reykholt, Ice land; http://www.skogur.is

Jul 26-28 IUFRO Conference "The Thin Green Line," a symposium on the state-of-the-art in reforestation; Thunder Bay, Ontario, Canada; http://www.forestrenewal.ca/thingreenline

Aug 5-7 IUFRO meeting, Improving Productivity in Mixed-Species Plantations, Southern Cross University, Lismore, Australia; contact dnichols@scu.edu.au

*Aug 7-12 Ecological Society America annual meeting, Montreal, Canada; http://www.esa.org/montreal/. Outcalt to attend and present.

Aug 8-13 IUFRO World Congress, Brisbane, Australia. Stanturf to attend. http://www.iufro2005.com

*Aug 29-31 Status, Trends, and Future of the South's Forest and Agricultural Biomass conference, Athens, GA; http://biomass.sref.info/conference.htm

*Aug 29-31 White House Conference on Cooperative Conservation, St. Louis, MO; http://www.conservation.ceq./gov/about.html.

Sep 9-10 Pre-Conference Workshop in association with Pedometrics 2005 Conference, Gainesville, FL. http://conference.ifas.ufl.edu/pedometrics/#optional

Sep 10-12 European Forestry Institute annual conference and Scientific Seminar "Multifunctional Forest Ecosystem Management in Europe: Integrated approaches for considering the temporal, spatial and scientific dimensions" Centre Tecnològic Forestal de Catalunya (CTFC), Barcelona, Spain

Sep 12-14 Pedometrics 2005: Frontiers in Pedometrics, Naples, FL. http://conference.ifas.ufl.edu/pedometrics/

*Sep 12 Fire Prevention - Wildland Urban Interface Exchange Workshop, Birmingham, AL; postponed from May

Sep 12-18 Society for Ecological Restoration 17th International Conference,Zaragoza, Spain. http://www.ecologicalrestoration.net

Sep 20-21 NOAA/EPA Golden Jubilee Symposium on Air Quality Modeling and Its Applications, Durham, NC.

Sep 25-30 MEDPINE 3: International Conference on Conservation, Regeneration and Restoration of Mediterranean Pines and their Ecosystems, MAIB, Mediterranean Agronomic Institute of Bari - Valenzano (Bari), Italy. For further information contact: Angela Inchingolo or Elvira Loiudice (loiudice@iamb.it)

*Sep 27-Oct 1 Workshop and meeting of the Scandinavian Disturbance Network, "The scale of natural disturbances from tree to stant, " sponsored by Lithuanian Forest research Institute and Instituite of Forestry and Rural Engineering of Estonian Agricultural University; Vilnius and Palanga, Lithuania

*Oct 9-13 2nd International Conference on Mechanisms of Organic Matter Stabilization and Destabilization in Soils, Asilomar California, http://wwwdata.forestry.oregonstate.edu/SoilConf

Oct 15-20 International conference on "Metal fluxes and their stress on terrestrial ecosystems," Centro Stefano Franscini, Monte Verità, Ascona, Switzerland; http://www.waldschutz.ch/bioindic/monte_verita/ [Abstracts due 1 May 2005]

Oct 17-19 23rd Tall Timbers Fire Ecology Conference "Fire In Grassland and Shrubland Ecosystems", Bartlesville, OK; http://www.talltimbers.org

Oct 19-23 Society American Foresters Annual Meeting, Ft. Worth, TX

Nov 6-10 Soil Science Society of American Annual Meeting, Salt Lake City, UT

Nov 7-11 IUFRO Tree Biotechnology 2005 Meeting, Pretoria, South Africa www.iufro.up.ac.za.

Nov 15-17 Fire in Eastern Oak Forests: Delivering Science to Managers, Ohio State University, Columbus, OH; contact Matt Dickinson mbdickinson@fs.fed.us

2006

*Jan 29-Feb 2 American Meteorological Society Annual Meeting, Atlanta, GA; http://www.ametsoc.org/meet/annual/

*Jan 8-12 "Ecology in an Era of Globalization: Challenges and Opportunities for Environmental Scientists in the Americas," Merida, Yucatan, Mexico; www.esa.org/mexico

*Feb/Mar Central Hardwood Forest Conference, Knoxville, TN.

*Mar 29-Apr 2 American Society Environmental History Annual Meeting, St. Paul, Minnesota; http://www.h-net.org/~environ/ASEH/conferences.html.

*Apr 8-12 International Conference on Hydrology and Management of Forested Wetlands, New Bern, North Carolina; http://www.asae.org/imis/meeting/forestcall.cfm

Jul 9-15 18th World Congress of Soil Science, in Philadelphia, PA http://www.18wcss.org

Oct 25-29 Society American Foresters Annual Meeting, Pittsburgh, PA

*Nov 12-16 Soil Science Society of American Annual Meeting, Indianapolis, IN; http://www.indy.org

*Nov 27-30 V International Conference on Forest Fire Research, Coimbra, Portugal http://www.fire.uni-freiburg.de/course/meeting/meet2004_25.htm

2007

*Feb 26-Mar 1 14th Biennial Southern Silvicultural Research Conference, Charleston, SC or Savannah, GA;

*Oct 24-28 Society American Foresters Annual Meeting, Portland, OR.

*Nov 4-8 Soil Science Society of American Annual Meeting, New Orleans,

2008

*Nov 5-9 Society American Foresters Annual Meeting, Reno,

Researchers at Olustee Experimental Forest 1923

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GPRA -Accomplishment

Category	FY 2004 Total	FY 2005 Total
Number of Refereed Journal Publications	20	17
Number of Non-Refereed Publications (include abstracts)	89	24
Number of Publications (refereed + non-refereed)	109	41
Number of Tours	41	30
Number of Short Courses/Training	20	8
Number of Invited Presentations to Scientific Organizations	12	3
Number of Invited Presentation to Lay Organizations	30	19
Volunteer Presentations to Scientific Organizations (non-GPRA	42	31
Number of Technology Transfer Activities (other than above)	105	105
Outside Funding	$2,610,574	$3,374,469

SRS-4104 Project Leader's Report

John Stanturf - Editor Lynne Breland - Technical Writer
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